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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/690,755	10/18/2000	Makoto Sugizaki	Q61275	2280
7590 05/17/2004			EXAMINER	
SUGHRUE, MION, ZINN, MACPEAK & SEAS, PLLC 2100 Pennsylvania Avenue, N.W. Washington, DC 20037-3202			LEE, TOMMY D	
			ART UNIT	PAPER NUMBER
			2624	3
DATE MAILED: 05/17/2004				

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

09/690,755

Applicant(s)

SUGIZAKI, MAKOTO

Examiner

Thomas D. Lee

Art Unit

2624

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 13 and 14 is/are allowed.
- 6) ☒ Claim(s) 1-12 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
  - 2) ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date ____. | 6) <input type="checkbox"/> Other: ____.  |

## DETAILED ACTION

### *Priority*

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

### *Specification*

2. The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

### *Claim Rejections - 35 USC § 112*

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 1-10 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Base claim 1 recites an image processing method, "wherein said image processing method performs the halftone dot processing in which a first dot% of dot patterns ... is different from a second dot% of dot patterns *wherein all the dot patterns, which are adjacent to one another with respect to the identical direction.*" (note applicant's specification, at page 48, lines 8-19, italics added) This recitation, which also appears in dependent claim 3 (page 49, lines 16-26) does not adequately describe the second dot% of dot patterns, as it does not describe what occurs among the

Art Unit: 2624

adjacent dot patterns in determining the second dot%. Base claims 11 and 13 suggest that the second dot% is the dot% wherein all of the adjacent dot patterns "are in contact with one another" (page 54, lines 15-16 and page 57, line 16), but such is not recited in base claims 1 or 3.

***Claim Rejections - 35 USC § 102***

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 1-4 and 9-12 are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent 4,507,685 (Kawamura).

Regarding claim 1, Kawamura discloses an image processing method of performing a halftone dot processing in which first image data representative of pixel values of a plurality of pixels constituting an image is converted into second image data representative of dot patterns of halftone dots, wherein said image processing method performs the halftone dot processing in which a first dot% of dot patterns, wherein mutually contacting dot patterns first appear with respect to an identical direction on the image, in the event that the halftone dot processing is repeatedly performed while pixel values of pixels on an image comprising a plurality of pixels all of which are same in pixel value are sequentially varied from a lower density end to a higher density end uniformly, is different from a second dot% of dot patterns wherein all the dot patterns, which are adjacent to one another with respect to the identical direction (Noting

Art Unit: 2624

Attachment A, which shows Fig. 11A of Kawamura, dot patterns corresponding to a first dot% of 5/16, or 31.25% are formed. Locations where adjacent dot patterns first contact each other with respect to an identical direction (approx. 14 degrees) are circled in red. Next, noting Attachment B, which shows dot patterns corresponding to a second dot% of 9/16, or 56.25%, all of the adjacent dot patterns are in contact with one another with respect to the identical direction.).

Regarding claim 2, said halftone dot processing is a process for comparing pixel values of pixels on an image represented by the first image data with thresholds of a halftone pattern comprising an arrangement of thresholds, which are mutually superimposed, in the event that the halftone pattern is superimposed on the image, to convert the pixel values of the respective pixels on the image into binary values or multi-values more than the binary values (column 5, lines 35-52), and said halftone dot processing is performed using a halftone pattern in which thresholds are adjusted in such a manner that the first dot% regarding a same direction on the image is different from the second dot% (as mentioned above with respect to claim 1), said halftone pattern being concerned with such a pattern that when a dot cell associated with one halftone dot is regarded as a unit, there are arranged a plurality of sorts of dot cells in which at least part of the thresholds arranged on the dot cells are relatively different from pixel values on an image area on which the dot cells are superimposed (threshold data from threshold matrix may be greater or less than corresponding output data (column 5, lines 42-45)).

Regarding claim 3, said halftone dot processing is performed in such a manner that the first dot% of dot patterns, wherein mutually contacting dot patterns first appear with respect to an identical direction on the image, in the event that the halftone dot processing is repeatedly performed while pixel values of pixels on an image comprising a plurality of pixels all of which are the same in pixel value are sequentially varied from a lower density end to a higher density end uniformly, is different from the second dot% of dot patterns wherein all the dot patterns, which are adjacent to one another with respect to the identical direction (as mentioned above with respect to claim 1), and further the first dot%-to-first dot% with respect to the mutually different direction, and the second dot%-to-second dot% with respect to the mutually different direction are mutually different, respectively (Noting Attachment A, the first dot% is 31.25%, as mentioned above. Next, note that Attachment C, dot patterns corresponding to a first dot% of 6/16, or 37.5%, with respect to a mutually different direction (orthogonal with respect to the first direction) are formed. Locations where adjacent dot patterns first contact each other with respect to the mutually different direction are circled in red. Regarding the second dot%, Attachment B shows a second dot% of 9/16, or 56.25%, as mentioned above. Next, noting Attachment D, dot patterns corresponding to a second dot% of 10/16, or 62.5%, with respect to the mutually different direction are formed, where all of the adjacent dot patterns are in contact with one another with respect to the mutually different direction.).

Regarding claim 4, said halftone dot processing is a process for comparing pixel values of pixels on an image represented by the first image data with thresholds of a

Art Unit: 2624

halftone pattern comprising an arrangement of thresholds, which are mutually superimposed, in the event that the halftone pattern is superimposed on the image, to convert the pixel values of the respective pixels on the image into binary values or multi-values more than the binary values (column 5, lines 35-52), and said halftone dot processing is performed using a halftone pattern in which thresholds are adjusted in such a manner that the first dot%-to-first dot% with respect to the mutually different direction, and the second dot%-to-second dot% with respect to the mutually different direction are mutually different, respectively (as mentioned above with respect to claim 3), said halftone pattern being concerned with such a pattern that when a dot cell associated with one halftone dot is regarded as a unit, there are arranged a plurality of sorts of dot cells in which at least part of thresholds arranged on the dot cells are relatively different from pixel values on an image area on which the dot cells are superimposed (as mentioned above with respect to claim 2).

Regarding claims 9 and 10, said halftone dot processing is performed using a halftone pattern in which there are arranged a plurality of sorts of dot cells wherein there are arranged thresholds which are relatively adjusted to pixel values of the image area to be superimposed in such a manner that a difference between minimum dot% of the first dot% regarding mutually different directions and maximum dot% of the second dot% regarding mutually different directions is not less than 1% (minimum dot% of first dot% equals 31.25% (Attachment A), maximum dot% of second dot% equals 62.5% (Attachment D)).

Regarding claim 11, Kawamura discloses an image processing apparatus for performing a halftone dot processing in which first image data representative of pixel values of a plurality of pixels constituting an image is converted into second image data representative of dot patterns of halftone dots, said image processing apparatus comprising: a data conversion unit for comparing pixel values of pixels on an image represented by said first image data with a threshold of halftone patterns comprising an arrangement of thresholds, which are mutually superimposed, in the event that the halftone patterns are superimposed on the image, to convert the pixel values of the respective pixels on the image into multi-values not less than binary values, so that the second image data representative of dot patterns of the respective halftone dots is produced (column 5, lines 35-52); and a halftone pattern storage unit for storing the halftone patterns in which thresholds are adjusted so as to obtain dot patterns wherein a first dot% of dot patterns, wherein mutually contacting dot patterns first appear with respect to the same direction on the image, in the event that the halftone pattern is combined with such a halftone pattern that when a dot cell associated with one halftone dot is regarded as a unit, there are arranged a plurality of sorts of dot cells in which at least part of thresholds arranged on the dot cell is different from among dot cells (Fig. 11A shows 16 4x4 dot cells, where the arrangement of threshold values is different for a plurality of cells), and in addition in the event that the data conversion unit repeatedly performs the data conversion processing, using the halftone patterns, while the pixel values of the pixels on the image comprising a plurality of pixels all of which are same in pixel value are sequentially varied from the lower density end to the higher density end



Art Unit: 2624

uniformly, is different from a second dot% of dot patterns wherein all the dot patterns, which are adjacent to one another with respect to the same direction, are in contact with one another (as mentioned above with respect to claim 1), wherein said data conversion unit performs the data conversion processing using the halftone patterns stored in said halftone pattern storage unit (column 5, lines 35-52).

Regarding claim 12, said halftone pattern storage unit stores the halftone patterns in which thresholds are adjusted so as to obtain dot patterns wherein a first dot% of dot patterns, wherein mutually contacting dot patterns first appear with respect to the same direction on the image, in the event that the halftone pattern is concerned with such a halftone pattern that when a dot cell associated with one halftone dot is regarded as a unit, there are arranged a plurality of sorts of dot cells in which at least part of thresholds arranged on the dot cell is different from among dot cells (as mentioned above with respect to claim 11), and in addition in the event that the data conversion unit repeatedly performs the data conversion processing, using the halftone patterns, while the pixel values of the pixels on the image comprising a plurality of pixels all of which are same in pixel value are sequentially varied from the lower density end to the higher density end uniformly, is different from a second dot% of dot patterns wherein all the dot patterns, which are adjacent to one another with respect to the same direction, are in contact with one another (as mentioned above with respect to claim 1), said halftone patterns being a pattern in which thresholds are adjusted in such a manner that mutually different dot patterns are obtained as to the first dot%-to-first dot% with respect to the mutually different direction (Attachments A and C show mutually

Art Unit: 2624

different dot patterns), and to the second dot%-to-second dot% with respect to the mutually different direction (Attachments B and D show mutually different dot patterns).

***Allowable Subject Matter***

7. Claims 13 and 14 are allowed.

8. Claims 5-8 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, second paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

9. The following is a statement of reasons for the indication of allowable subject matter: No prior art has been found to disclose or suggest applicant's "data correction unit for performing an arithmetic operation between pixel values of pixels on an image represented by said first image data and correction values of a correction pattern comprising an arrangement of correction values, which are mutually superimposed, ..." in combination with a data conversion unit as recited in base claim 13; or a step "wherein said halftone dot processing is performed using a halftone pattern in which there are arranged a plurality of sorts of dot cells for forming dot patterns, which are identical with one another in growth process with respect to the shape and are different from one another in degree of growth in at least part of mean dot% range, ..." as recited in dependent claims 5 and 6; or a step "wherein said halftone dot processing is performed using a halftone pattern in which there are arranged a plurality of sorts of dot cells for forming dot patterns, which grow while maintaining the same dot% and are mutually different with respect to the shape in at least part of mean dot% range, ..." as recited in dependent claims 7 and 8.

Art Unit: 2624

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thomas D. Lee whose telephone number is (703) 305-4870. The examiner can normally be reached on Monday-Friday (7:30-5:00), alternate Fridays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David K. Moore can be reached on (703) 308-7452. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Thomas D. Lee  
Primary Examiner  
Art Unit 2624

tdl  
May 14, 2004